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Butterflies
of the
Green
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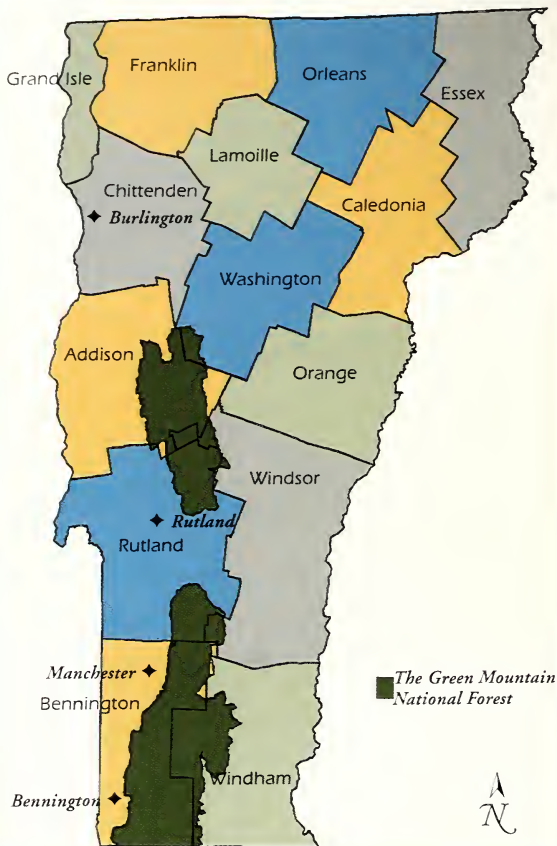


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Butterflies
of the
Green
Mountain
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*Butterflies
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FIELD PHOTOGRAPHS BY JOHN R. GREHAN
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PHOTOGRAPHY

Cover Photographs:

Top: American Painted Lady, see page 33.

Bottom: Mustard White, see page 23.

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TOP: FRITILLARY BUTTERFLIES FEEDING ON MILKWEED.

BOTTOM: PREDACEOUS BUGS FEEDING ON A MONARCH BUTTERFLY CATERPILLAR.



Butterflies

& the Green Mountain National Forest

BUTTERFLIES ARE PART OF A DIVERSE ecosystem that exists in the Green Mountain National Forest. They are common in all areas of the Forest from young, open areas to mature forest stands. Butterflies attract attention because they are active in the daytime, are often quite large (compared to other insects), and are brightly colored. They function in this ecosystem as pollinators of flowers, recyclers of nutrients, and prey for many birds, spiders, and small mammals. This publication provides some introductory information about butterflies and describes some common species found in this National Forest.

WHAT IS A BUTTERFLY?

Butterflies, along with moths, are members of the insect order Lepidoptera. Lepidoptera literally means scaly (*Lepido*) wing (*pteron*) and refers to the thousands of tiny scales that cover a butterfly's or moth's wings and body. It has been estimated there are at least 60 million different types of insects in the world. Butterflies and moths comprise about 25% of this worldwide total. There are about 13,000 moth and 800 butterfly species in North America. In Vermont, about 2,000 different kinds of moths and 100 species of butterflies are represented. Each



FIGURE 1: TYPICAL ANTENNAE FOR A. BUTTERFLIES (ROUNDED CLUB); AND B. SKIPPERS (CURVED CLUB)

species is designated by a scientific name, which is important for proper identification. Common names may seem more familiar, but they can refer to several different species.

With the exception of a few tropical relatives, butterflies can be identified as day-flying moths having club-tipped antennae. The antennae of other day-flying moths are either hair-like or feather-like in appearance and lack the club. There are two principal groups of butterflies—the “true” butterflies which have antennae with rounded clubs, and the skippers which have antennae with hooked clubs and are usually heavier bodied. (See figure 1.)

Butterflies undergo four major stages of development: the egg, the caterpillar or larva, the pupa or chrysalis, and finally the stage we are most familiar with, the adult butterfly. (See figure 2.) Eggs are very small, usually cylindrical or round in shape, and are commonly found singly or in small clusters on plants that serve as food for the next stage, the caterpillar. Butterfly caterpillars may be brightly colored, but green or brown colors are also common. Many have bodies adorned with groups of bristles or spines. Like many grazing animals, caterpillars are fully preoccupied with feeding, consuming relatively large amounts of plant material, but utilizing only a small proportion in their growth. Waste is excreted in the form of fecal pellets that fall to the ground, rapidly decay, and return nutrients to the soil where they are again accessible to plants. When caterpillars reach the end of their development, they move to a sheltered location and form a pupa or

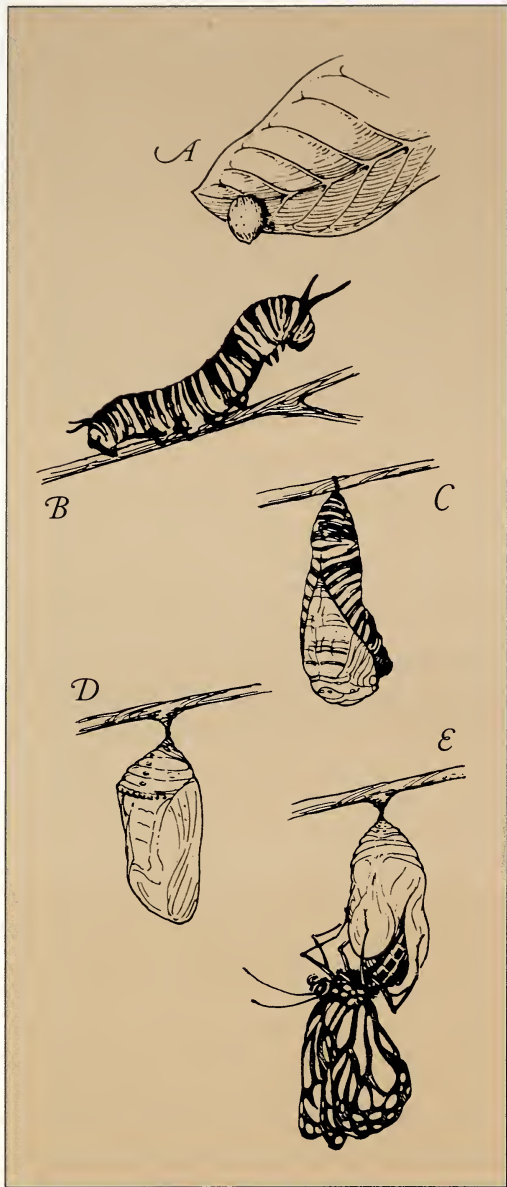


FIGURE 2: THE FOUR LIFE STAGES OF A MONARCH BUTTERFLY: (A) EGG, (B) LARVAE (CATERPILLAR), C. PUPAE SPLITTING OUT OF LARVAE SKIN; D. PUPA (CHRYSLIS) AND E. EMERGING ADULT BUTTERFLY. *Illustration from A FIELD GUIDE TO EASTERN BUTTERFLIES by Paul Opler. Illustrations copyright © 1992 by Vichai Malikul. Reproduced by permission of Houghton Mifflin Company. All rights reserved.*

chrysalis. The chrysalis is immobile and is the stage in which the caterpillar transforms to the adult butterfly. The life of the adult butterfly is largely occupied by mating and reproduction, but adults also feed through a coiled tube or proboscis, sucking plant fluids such as nectar and honeydew. These fluids provide the energy necessary for adult courtship and egg development in the female. Some adults are short-lived, lasting only a few days, but some species will overwinter and return to active flight the following season.

Ecologically, the butterfly's biological interactions with plants through pollination and feeding may represent a significant process that is sensitive to changes in the environment. Since butterflies have a short generation time (a year or less), their response to environmental changes could represent an outdoor "canary in the coal mine" as an early warning of threats to the health of our natural areas.

How to see Butterflies

BUTTERFLIES CAN BE OBSERVED IN THREE common situations—roadways, walking trails, and forest openings. Roadways provide the best chance to see some of the larger species that come down to the ground to either feed or relax in the sun. Some, for example the tiger swallowtail, will cluster on the ground around sites of moisture, such as small puddles after a rainstorm. Sometimes it is possible to approach quite close to these clusters.

Many trail entrances in the National Forest have openings with a variety of herbs and flowers. These openings provide excellent areas to see butterflies in action. When butterflies are on the move, flying either along a particular route or in what appears to be random directions, they are easy to spot. Butterflies at rest, warming in the sun or feeding, are not so obvious because they blend into the background, despite their often colorful appearance.

A good method for observing butterflies is to pick a site where you can sit or stand motionless. As you focus your eyes on the surface of flowers and herbs, the occupants of the area will become apparent. You may become aware of just how many butterflies are flitting about between flowers, and their abundance may surprise you. If a butterfly is disturbed, it may fly



MUSTARD WHITE PERCHED ON DANDELION

only a short distance before regaining its composure, and sometimes will return near to the site of its original departure.

Most flowers are attractive to butterflies, but some are more attractive than others. Some flowers are especially attractive to particular species. Look at the flowers around you that have butterflies. Do they have any particular fragrance that you can detect? Does this fragrance seem attractive to you? Butterflies are attracted to color patterns and flower scents that are not always apparent to humans.

WHERE TO LOOK

The Green Mountain National Forest includes two major forest vegetation types: spruce-fir and northern hardwoods. The adults of most butterfly species may be observed in either of these vegetation types at one time or another. Within northern hardwoods and spruce-fir forests, butterflies are best observed in areas of low vegetation, such as forest openings or meadows, and along forest edges, especially if a diversity of herbs and flowers is present. Sunlit areas with

clusters of flowers along walking trails are also attractive to butterflies. Sometimes butterflies use trails as flight paths, and are seen as they fly over or around hikers.

Butterflies such as the swallowtails, anglewings, and admirals are large enough to be seen from vehicles while travelling along the forest roadways. If you do not travel too fast, it is possible to spot the butterflies at rest on the road. The butterfly will often appear as a triangular shaped silhouette with its wings folded above its body. Others will be active along the roadside where the herbs and flowers are present.

WHEN TO LOOK

Butterflies are active in the Green Mountain National Forest almost from the instant that snow first melts from the forest floor to the first snow at the onset of the following winter. The early spring appearance is by butterflies that overwinter as adults, using debris such as logs or wood piles as shelter. As soon as the spring-time temperatures climb to about 60°F, they emerge on sunny days and search for food. These early species will again be seen in the fall, as the offspring of the spring brood come to maturity.

The length of time a particular adult butterfly species can be seen varies. Some have a narrow window of activity lasting one to two weeks, while others may be present for as long as a month or more. Those butterflies with multiple generations are present through most of the year. Late June and early July appear to be the best time for observing the maximum number of species.



BUTTERFLY VISITS TO FLOWERS ARE NOT ALWAYS SUCCESSFUL.
PREDATORS SUCH AS SPIDERS MAY BE WAITING.



Butterfly Conservation

BUTTERFLIES ARE QUITE BEAUTIFUL, rarely annoy us, and very few are pests of crops or any of our other resources. These attributes have helped butterflies attain “wildlife” status, one of the few insects to do so. This has helped butterflies to be recognized as worthy of conservation. Several butterfly species are being protected under the Endangered Species Act of 1973.

Important components of butterfly conservation are habitat protection and maintenance. Butterfly diversity and abundance are linked to the availability and condition of habitat. Over time these habitats change, sometimes naturally, such as when a forest opening created by a wildfire or storm slowly closes over as trees reinvade and grow to maturity. Sometimes the change is caused by man clearing and developing land for new homes and businesses, harvesting trees, or even the zealous suppression of wildfire. For example, the Karner Blue butterfly evolved a dependency on lupine, a herbaceous plant which thrives in pine-oak habitats common on sandy soils from portions of New England through the Lake States. An historical attribute of these pine-oak habitats was frequent low intensity fires. These periodic fires, by creating

openings, provided excellent growing situations for lupine, and the Karner Blue thrived. During the past century, land development, wildfire prevention efforts, and improved wildfire suppression techniques caused a dramatic reduction in the acreage burned by wildland fires. In turn, the lupine-dominated habitat needed by the Karner Blue decreased to a point where this butterfly is now listed as an endangered species. To prevent extinction, a reasonable amount of suitable habitat needs to be maintained.

Another consideration in the conservation of butterflies is pesticide use, particularly to control insect pests in forest situations. Without adequate consideration and mitigating actions, pesticides intended to control a pest insect could adversely affect the non-pest butterflies. This potential impact is currently of special concern to forest managers deciding if and when pesticides should be used. With good information on the abundance of butterfly populations (particularly threatened or endangered species), the sensitivity of non-target insects to various pesticides, and butterfly biology and habits, forest managers can effectively minimize impacts to these non-pest insects.

Finally, our very presence in any natural habitat has an impact on the life and death of butterflies. Hundreds of individuals may be killed each year through necessary habitat management such as trail and road maintenance, and unfortunate collisions with vehicles on roadways. These losses are more than offset by the economy of nature. If the habitat is healthy, and the butterfly populations are robust, these losses are negligible.

Butterflies are often of interest to recreational and scientific collectors. In the Green

Mountain National Forest such collecting is both educational for people of all ages and harmless to the continued health of the natural environment.



Some Common Butterflies

Examples of common butterflies found in the Green Mountain National Forest are presented here. This list is by no means complete, and it is likely that most species recorded for Vermont will be present within the boundaries of the Green Mountain National Forest. These species illustrated here will provide you with an indication of the variety and character of butterflies that you are likely to meet through much of the summer, particularly if you look around the habitats where you camp, hike, and explore.



CANADIAN TIGER SWALLOWTAIL
Papilio canadensis



BLACK SWALLOWTAIL / *Papilio polyxenes*
TOP: FEMALE, BOTTOM: MALE



CABBAGE BUTTERFLY / *Pieris rapae*
TOP: MALE, BOTTOM: FEMALE

S W A L L O W T A I L S

FAMILY PAPILIONIDAE

This group is richest in the tropics and favored among collectors and photographers, but only two species frequent the Green Mountain National Forest.

Canadian tiger swallowtail

Papilio canadensis

This species is found from May to mid-July, but is most common in June, when they frequent open roads. The species ranges from Alaska south and east across Canada and the Great Lakes. Caterpillars feed on birch, aspen and black cherry.

Black swallowtail

Papilio polyxenes

This is a widespread species ranging from northern South America to southeastern Canada. It is usually seen in open areas. The caterpillar frequents low herbs in the parsley family. There are two broods in Vermont and butterflies are seen from May to August.

W H I T E S & S U L P H U R S

FAMILY PIERIDAE

These butterflies have mostly white, yellow, or orange wings with small amounts of black or red. The most well known is the cabbage white, which was introduced from Europe.

Cabbage butterfly

Pieris rapae

Adults may be seen throughout the Forest. The caterpillars feed on many plants in the mustard family, including cabbage. The butterfly was introduced to North America about 1860 in Quebec, Canada. The butterfly frequents open, weedy habitats. The adults are characterized by a single (male) or double (female) black sub-marginal spots on the wings.



WEST VIRGINIA WHITE / *Pieris virginiensis*
TOP: UPPER VIEW; BOTTOM, UNDER VIEW



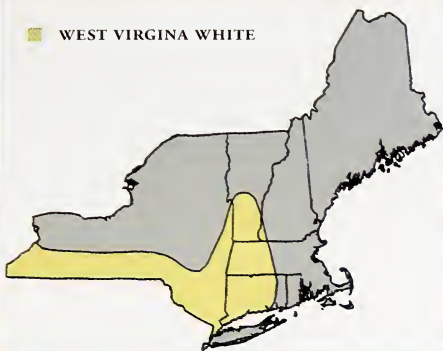
MUSTARD WHITE / *Pieris napi*
TOP: UPPER VIEW; BOTTOM, UNDER VIEW

West Virginia white

Pieris virginiensis

The northern boundary of this species is within the Green Mountains and the southern Champlain valley. It is common from May to early June. Larvae feed on toothworts and the adults frequent moist, rich deciduous woodland or mature mixed woods. This species is easy to view along roadways, and lacks the spots of the cabbage butterfly.

■ WEST VIRGINIA WHITE



DISTRIBUTION RANGE OF THE WEST VIRGINIA WHITE
IN NEW ENGLAND AND NEW YORK.
(MAP FROM OPLER AND MALIKUL, 1992)

■ MUSTARD WHITE



DISTRIBUTION RANGE OF THE MUSTARD WHITE
IN NEW ENGLAND AND NEW YORK.
(MAP FROM OPLER AND MALIKUL, 1992)

Mustard white

Pieris napi

In contrast to the West Virginia white, the southern range of the mustard white includes all of the Green Mountain National Forest, and extends into New York. The adult is present in May, overlapping in time with the West Virginia white, but may be distinguished by the more prominent grey veins on the underside of the wings. Larvae feed on various plants in the mustard family.



BANDED HAIRSTREAK / *Satyrium calanus*
TOP: UPPER VIEW; BOTTOM, UNDER VIEW



ACADIAN HAIRSTREAK / *Satyrium acadicum*
TOP: UPPER VIEW; BOTTOM, UNDER VIEW

COPPERS & HAIRSTREAKS

FAMILY LYCAENIDAE

The adults are usually small and brightly colored, with iridescent blues, oranges, and reds as common wing colors.

BROWN HAIRSTREAKS

Genus *Satyrrium*

The upper wing surface of these butterflies is a non-descript brown or gray-brown, while the primary identification features are to be found on the underside. However, some species are very difficult to distinguish externally, particularly if the condition has deteriorated in an individual that has been on the wing for some time. The hindwings terminate in short, delicate tails, often with one or more orange spots near the base. Caterpillars feed on the reproductive structures and young leaves of woody plants such as heaths. Milkweed flowers appear particularly favorable to feeding butterflies. There are probably several species present in the National Forest.

Banded hairstreak

Satyrrium calanus

The underside of the hindwing is brown with a post-median line of dark, white-edged dashes. The blue tail spot lacks orange. Caterpillars feed on oaks, walnuts, and hickories. There is a single brood and adults may be seen in July.

Acadian hairstreak

Satyrrium acadicum

The underside of the hindwing is gray with a row of orange submarginal spots capped with black. The blue tail spot is capped with orange. Caterpillars feed on willows. There is only a single brood, and adults fly mostly from late June through mid-July.



EASTERN TAILED BLUE / *Everes comyntas*
TOP: MALE; BOTTOM: FEMALE



SPRING AZURE / *Celastrina agriolus*
TOP: SPRING; MIDDLE: SUMMER; BOTTOM: UNDER VIEW



SILVERY BLUE / *Glaucopsyche lygdamus*
TOP: UPPER VIEW; BOTTOM, UNDER VIEW

BLUES

Subfamily Polytommatinae

There are about 32 species in North America, but only two species—the eastern tailed blue and the spring azure—are widespread in eastern North America. These are small butterflies. Adult males are predominantly blue, the color due to reflection of light rather than pigmentation. Females and some males are predominantly brown. Caterpillars secrete fluids that are attractive to ants, and caterpillars of some species are raised in ant nests.

Eastern tailed blue

Everes comyntas

The upper side of the males' wings are iridescent blue, while the female is brown with some blue at the wing base. The hindwing has tails, which makes it look like a hairstreak. Caterpillars feed on the flowers and young seeds of many herbaceous legumes. There are probably at least three generations per year in Vermont, and the butterflies are seen from May to October.

Spring azure

Celastrina agriolus

The upper side of males' wings are blue. Females have some black on the outer portion of the forewing. Late spring and summer individuals have white patches on the hindwing. Caterpillars feed on flowers of dogwoods, wild cherry, New Jersey tea, viburnums, and other woody plants as well some herbs. Butterflies can be seen in the spring. Two generations develop each year.

Silvery blue

Glaucopsyches lygdamus

The upper wings are blue, with a black margin and white fringes. Undersides have submarginal rows of black, white-edged spots. Larvae feed on vetches. Adults fly in June and July. The butterflies are often seen in open areas near woods.



QUESTION MARK / *Polygonia interrogationis*
TOP: UPPER VIEW; BOTTOM, UNDER VIEW



HOP MERCHANT
Polygonia comma



GRAY COMMA / *Polygonia progne*
TOP: UPPER VIEW; BOTTOM, UNDER VIEW

B R U S H F O O T S

FAMILY NYMPHALIDAE

The front pair of legs in the male is reduced and not used for walking, hence the common name of brushfoot. The butterflies are highly variable in appearance.

ANGLEWINGS

Genus *Polygonia*

The highly irregular outline of their wings is the most prominent feature of this group. Most species are found in wooded habitats. The adults are rarely found at flowers, but feed on rotting fruit, sap exudates, or animal dung. The butterflies can be readily attracted to bait such as a mixture of fermenting beer and a small amount of brown sugar. The worse the smell, the better its effectiveness. The two most common species in the East are the question mark and hop merchant. Both species migrate south in the fall and return in the spring. Some species in Vermont have two color forms. The spring and fall form has black hindwings, while the summer form is predominantly orange with black spots.

Question mark

Polygonia interrogationis

The common name is derived from the prominent silver-colored spots on the underside of the hindwings. Caterpillars feed on nettles, hops, elms, and hackberry.

Hop merchant

Polygonia comma

The gold spot on the underside of the hindwing has the shape of a comma. Caterpillars feed on nettles, elms, and hops.

Gray comma

Polygonia progne

The underside of the hindwing is covered with fine gray-brown lines, and the gold "comma" is shaped like a fish-hook. Caterpillars feed on gooseberry and, rarely, on elm.



MOURNING CLOAK
Nymphalis antiopa



MILBERT'S TORTOISE SHELL
Nymphalis milberti



RED ADMIRAL
Vanessa atalanta

TORTOISE SHELLS

Genus *Nymphalis*

These species are occasionally migratory, and have only one generation each year. Adults overwinter. The Milbert's tortoise shell readily visits flowers, but the other species are more attracted to sap flows and animal dung.

Mourning cloak

Nymphalis antiopa

The outer wing margins are irregular in outline, with a short tail-like projection on the hind-wing. Caterpillars feed on willows, birch, cottonwood, elms, and hackberry. Overwintering adults are first seen in April and May. The next generation first makes its appearance about June and July and provides the best looking specimens. These will live until the following spring.

Milbert's tortoise shell

Nymphalis milberti

The adult butterflies are swift flyers, and are best observed when feeding on flowers. They are often seen in open areas along roadsides or glades. The caterpillars feed on nettles.

Red admiral

Vanessa atalanta

Widespread throughout North America, this species is distinctive due to its red-orange bands and white spots that contrast with a black background. Caterpillars feed on nettles. This is a regular migrant that must recolonize colder areas, such as Vermont, each year.



AMERICAN PAINTED LADY
Vanessa virginiensis



PAINTED LADY
Vanessa cardui

American painted lady

Vanessa virginiensis

This species is similar in appearance to the painted lady. The forewing exhibits a white dot in an orange field, just below the black apical patch located in the angle of the wing-tip. The underside of the hindwing has two large submarginal eyespots. Caterpillars feed on herbs in the daisy family, particularly everlastings. Adults migrate to Vermont each year.

Painted lady

Vanessa cardui

This species is very similar in overall appearance to the American painted lady, but has white spots within the apical black patch on the forewing, and four small submarginal eyespots on the underside of the hindwing. Larval food-plants exceed 100 species, including thistles, mallows, and legumes. Adults are seen from May to October with two, or occasionally three, broods each year. This species is a migrant each year to Vermont.



WHITE ADMIRAL, RED SPOTTED PURPLE
Limenitis arthemis (TWO COLOR FORMS)



VICEROY
Limenitis archippus

ADMIRALS

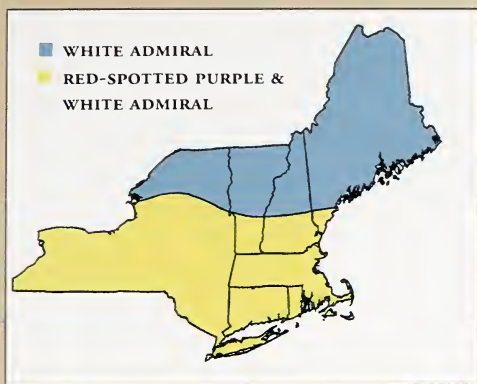
Subfamily Limenitidinae

These are common butterflies world-wide. Many genera have a characteristic flap-and-glide flight motion.

White admiral, red spotted purple

Limenitis arthemis

There are two contrasting forms in the adult, which were once treated as separate species. In



DISTRIBUTION OF
THE WHITE ADMIRAL AND RED-SPOTTED PURPLE
IN NEW ENGLAND AND NEW YORK
(FROM OPLER AND MALIKUL, 1992).

Vermont the more common, and widespread white admiral form is characterized by a broad outwardly curved white band on the forewing. The red spotted purple lacks the white band, but has two red-orange bars on the forewing and three basal red-orange spots on the hindwing.

The northern distribution of the white admiral overlaps with the southern red spotted purple's within the vicinity of the Green Mountain National Forest. The two forms freely hybridize in the region of geographic overlap. Caterpillars feed on the leaves of various trees and shrubs, including wild cherry, poplar, and aspens. The adults are frequently observed from May to September, especially along roads and other clearings. There are two broods each year.

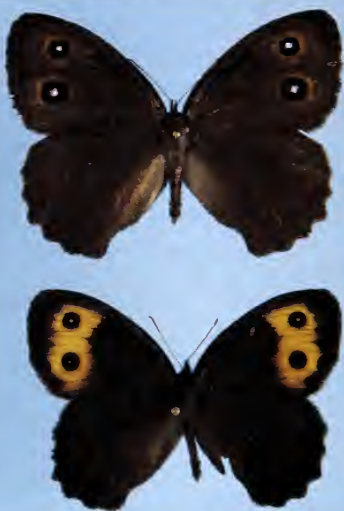
Viceroy

Limenitis archippus

This species is superficially similar to the monarch in appearance, but the viceroy has a post-median black line on the hindwing and only a single row of white spots on the black marginal band. Caterpillars feed on the leaves of a variety of willows, and there are at least two generations each year.



INORNATE RINGLET / *Coenonympha tullia inornata*
(TWO COLOR FORMS)



COMMON WOOD NYMPH / *Cercyonis pegala*
(TWO COLOR FORMS)

SATYRS & WOOD NYMPHS

FAMILY SATYRINAE

These butterflies are usually brown with marginal eyespots. Caterpillars feed on grasses and rarely feed on flowers. Some species prefer rotting fruit, tree sap, or animal droppings.

Inornate ringlet

Coenonympha tullia inornata

The wings range from yellow-cream to orange-brown. The underside of the forewing usually has a round, black eyespot, while the hindwings are gray-green with a winding pale-white median line. Caterpillars feed on grasses and rushes. Adults fly mid-June to September with two broods each year. They are commonly seen along roadsides in the Green Mountain National Forest feeding on flowers of low herbs.

Common wood nymph

Cercyonis pegala

These butterflies are occasionally observed flying in the forest, or along forest margins. There are two forms. One has a large yellow patch on the forewing, with each patch enclosing two black and white eyespots. The other form lacks the yellow patch surrounding the eyespots. Caterpillar larvae feed on purpletop and other grasses. Adults fly from July to September.



MONARCH / *Danaus plexippus*
TOP: MALE; BOTTOM: FEMALE

MILKWEED BUTTERFLIES

Subfamily Danainae

Monarch

Danaus plexippus

These are the most familiar of all butterflies, but take care not to confuse them with the viceroy. The male is bright orange and has a black scent patch on the upper side, in the middle of the hindwings. Adults overwinter in central Mexico, and progressively expand northwards over several generations. Adults first appear in Vermont in June. In late September and early October considerable numbers may be seen flying south.



LONG DASH
Polites mystic



DUN SKIPPER
Euphyes vestris



DREAMY DUSKY WING
Erynnus icelus

FAMILY HESPERIIDAE

There are about 280 species in North America, many of which are found in southern Texas. Most species are small to medium in size and relatively dull colored, with orange, brown, black and white being common colors. The antennae are quite distinct, with a hooked antennal club. The eyes are large, the antennae usually short, and the bodies are stout compared with most other butterflies. Many species may be difficult to distinguish for the beginner since color and pattern can differ considerably between the sexes. Several skippers are seen along roadsides and open areas of the Green Mountain National Forest.

Long dash*Polites mystic*

A long black stigma scent patch is present on the forewing of the male, while a broad black basal patch is present in the female. Caterpillars feed on bluegrasses. The adults are seen along wood edges and moist open areas from late May to early August.

Dun skipper*Euphyes vestris*

The male is brown-black with a black stigma while the female forewing has two tiny white dots. There is a single brood, with adults present from June to early August. Caterpillars feed on sedges.

Dreamy dusky wing*Erynnus icelus*

The forewings are a grizzled gray with darker transverse bands. Caterpillars feed on willows, poplars, and aspen. Adults fly from May to July. These butterflies are seen in open woods or forest edges.

Further Reading

Opler, P. A., and V. Malikul. 1992. *A Field Guide to Eastern Butterflies*. Peterson Field Guide. Houghton Mifflin Company. Boston, New York, London. (Includes range maps, and plates illustrating diagnostic features)

Pyle, R. M. 1992. *The Audubon Society Field Guide to North American Butterflies*. Alfred A. Knopf, Inc., New York. (Includes color plates of butterflies in natural settings)

Glassberg, J. 1993. *Butterflies Through Binoculars: A Field Guide to Butterflies in the Boston, New York, and Washington Region*. Oxford University Press. New York, Oxford. (Provides a binocular-eye view to identification. Color plates. (Many of the species illustrated are present in Vermont))

Information on Lepidoptera in Vermont

A list of moth and butterfly species recorded from Vermont is available in the following publication:

Grehan, J. R., B. L. Parker, G. R. Nielsen, D. H. Miller, J. D. Hedbor, M. S. Sabourin, & M. S. Griggs. 1995. *Moths and Butterflies of Vermont* (Lepidoptera): A faunal checklist. A joint Vermont Agricultural Experiment Station and State of Vermont Publication. Miscellaneous Publication 116, VMC Bulletin 1. 86 pp. (\$12.00)

For general inquiries regarding Lepidoptera in Vermont write to the Vermont Entomological Society, P. O. Box 9334, South Burlington, VT 05407-9334.

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